RESPONSE TO COMMENTS FROM THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION ON THE FINAL LETTER WORK PLAN FOR GROUND-WATER AND SOIL INVESTIGATION AT SITE 7

COMMENTOR: Claudia Sait **DATED: 20 February 2001**

The Maine Department of Environmental Protection (MEDEP or Department) has reviewed the report entitled *Final Letter Work Plan for Ground-Water and Soil Investigation at Site 7*, dated 8 February 2001, prepared by EA Engineering, Science, and Technology. Based on that review, the Department has the following comments and issues.

Each comment is followed with a code that indicates whether a response is required (RR), no response is required (NR), editorial correction needed (ED), or meeting discussion requested (MTG). No response is required for editorial corrections unless the Navy disagrees with the correction.

GENERAL COMMENT

The Department is disappointed that the Navy did not incorporate more of our recommendations in the Phase 1 investigation. By ignoring these recommendations, the Navy risks state concurrence with the Record of Decision for this site if it cannot provide adequate data to support its findings and conclusions. However, the Department submits the following comments knowing that the Navy has chosen to proceed at risk and has implemented Phase 1 of the Work Plan. (NR)

Response—The Navy believes that the responses to the MEDEP's comment letter dated 1 November 2000 are addressed by the Revised Final Work Plan and the Navy's responses to MEDEP's comment letter dated 20 February 2001 on the Final Work Plan (dated 8 February 2001). The only MEDEP recommendation (Comment No. 3 in MEDEP's 1 November 2000 comment letter) not fully implemented was the installation of the temporary sampling points prior to the execution of the short duration pumping test (Phase 1 tasks); however, the Navy's primary goal of the pumping test was not to collect aquifer parameters, but was instead to document how cadmium concentrations changed with time during the test. With the execution of Phase 2 tasks as presented in the Work Plan, supplemented with completed Phase 1 tasks, the data will be adequate to support the Navy's findings and conclusions for this site to support the issuance of a Record of Decision.

1. ***Figure 3, Ground-Water Flow Patterns at Site 7***—The southern half of the contouring shown in this figure is not correct, and should be ignored and redrafted for future work plans and reports. The problem is that the ground-water elevation for MW-NASB-096 is not correct. MEDEP has since learned that the correct value is 67.70 ft (1.8 ft lower). Therefore, the contours for the southern half are actually oriented close to northeast-southwest rather than the presently shown northwest-southeast direction. The corrected map will then look like previous contours maps of the site. The Work Plan rendering of contours did not affect the work already performed for Phase 1, but will bear on locating temporary sampling points in Phase 2. Please correct. (RR &ED)

Response—The Navy concurs with the MEDEP's comment. A revised ground-water contour figure was generated to show the correct ground-water elevations and updated with water levels that were obtained on 21 May 2001.

2. ***Phase 2, Step 1, Installation of Temporary Sampling Points, Page 3***—Three temporary sampling points are described for installation at various distances downgradient of the cadmium-contaminated well, but none are planned in the upgradient direction. To determine the extent of the source area, at least two additional points need to be installed for upgradient sampling. (RR)

   Response—The Navy will install one temporary sampling point (TEMP-04) approximately 35 ft upgradient of MW-NASB-094 (Figure 3). This upgradient sampling point will be sampled along with the other temporary sampling points. It should be noted that the distance to the existing upgradient monitoring wells (MW-NASB-093 and MW-NASB-095) is approximately 100 ft and 125 ft, respectively, and that cadmium has not been detected in these upgradient wells above the state MEG in previous sampling events at Site 7. We believe that the source (man-made or naturally occurring) of cadmium is small and will be confirmed by the test pit excavation in the upgradient area from MW-NASB-094. Additionally, natural ground-water conditions at MW-NASB-094 may be resulting in elevated cadmium concentrations, which have been consistently reported in this well above the State MEG for cadmium (5 µg/L). Well MW-NASB-094 noted the highest concentrations of total organic carbon and bicarbonate during the remedial investigation sampling. Both total organic carbon and bicarbonate concentrations have a direct relationship to cadmium concentrations because cadmium preferentially bonds to these compounds. Naturally occurring concentrations of total organic carbon or bicarbonate may account for elevated soil or ground-water concentrations. Therefore, a soil source of cadmium might not necessarily be present. Extensive test pits and soil sampling completed in the remedial investigation did not identify a likely source area. This suggests that if a soil source is present, it is likely to be a small area upgradient of MW-NASB-094. Potential sources could include waste disposal (i.e., soil affected by metal wastes, acids, and waste oils), debris such as batteries or leaching containers, or naturally occurring subsurface layers of organic rich material that preferentially bond with cadmium. These could include peat, buried wetland deposits, leaf litter, or other fine-grained intervals. These naturally occurring sources of cadmium have been overlooked in previous soils investigations.

3. ***Phase 2, Step 1, Installation of Temporary Sampling Points, Page 4, First Bullet***—It would seem to be more efficient to collect samples from all the sampling points in the same round than to wait for results of two samples before collecting the other. (ED)

   Response—All temporary sampling points will be sampled and analyzed for cadmium along with the two other temporary sampling points and the upgradient sampling location in the interest of time. The low-flow sampling method, as used in the Long-Term Monitoring Program, will be used to collect ground-water samples from the temporary sampling points at Site 7. The Revised Final Work Plan will be edited to reflect this change (collecting ground-water samples from all the temporary sampling points) to the 8 February 2001 Work Plan.

4. ***Phase 2, Step 1, Installation of Temporary Sampling Points, Page 4, Second Bullet***—How can the cadmium-impacted ground water be inferred to be only immediately upgradient of MW-NASB-094/MW-NASB-229 if new data are not collected upgradient? (See Comment No. 2 above.) If no new data are obtain upgradient what existing data will be used to delineate the source area? (RR)

   Response—Please see response to MEDEP Comment No. 2.

5. ***Phase 2, Step 2, Complete Excavation and Visual Survey, Page 5, Last Bullet***—If the entire permeable layer down to the clay surface may be removed, 2 weeks following well development may not be enough waiting time prior to ground-water sampling just downgradient of a large excavation. However, if the excavated layer is medium or coarse sand with little silt, 2 weeks may be long enough for reestablishment of flow conditions. The stabilization of new subsurface chemical conditions encompassing cadmium may require months, therefore, the Department will want the Navy to do confirmation ground-water sampling at some later date, before site closure can be accepted. (RR)

   Response—Ground-water sampling will be completed approximately 1 month following the completion of test pit excavation. It is anticipated that the results and data collected during this investigation will be discussed at a Technical Meeting in September 2001 to determine appropriate future actions at Site 7 (i.e., additional samples for site closure).